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Development Standards

City of Scottsdale

Indian Bend Wash Master Plan
'McKellips Road to Thomas Road'

Introduction

The City of Scottsdale is strongly committed to the continued success of Indian Bend Wash (IBW). Over the past 40 years the City has continued to make targeted improvements to the aging infrastructure and other features within the wash. These targeted improvements while addressing immediate needs and concerns did not evaluate the overall project corridors new opportunities relative to upgrading and updating the project to current needs and design standards. This master planning effort for the initial two mile section between McKellips Road and Thomas Road is the first such master planning effort undertaken by the City of Scottsdale since the project was envisioned in 1964.

The master plan design process targeted an extensive public input process focused on stakeholders and the community with a commitment to revitalizing, restoring and reinvigorating Indian Bend Wash. There were few constraints, beyond the physical characteristics of the site itself and the fact Indian Bend Wash should remain a landmark place focused on community linkages, passive and active recreation, and flood control. As a result, the redesign grew organically, based on the input of the City, stakeholders, and the public. In the end, a great number of alternatives and strategies have converged to create a visionary redesign that captures the imagination of a greatly improved public asset. A project that will help to catalyze private reinvestment along the corridor's banks, and will inspire the continued long term financial support from the City of Scottsdale in conjunction with the support gained from residents, patrons, donors, and contributors that are all eager to see Indian Bend Wash remain one of the City's most stellar recreational open space corridors.

Objectives and Goals

The objective of the master planning effort is to develop a master plan for the Indian Bend Wash (IBW) parks and lakes system between Thomas Road and McKellips Road within the City of Scottsdale.

First and foremost, the IBW Greenbelt is a multi-benefit regional flood control facility. However, much of the infrastructure of the corridor and many of the site features are reaching the end of their life cycle and are in need of replacement, rehabilitation and upgrades. This aspect is most obvious when reviewing one of the corridors most prominent features the project's Lake System. This system is comprised of several lakes (Eldorado North, Eldorado South, Vista del Camino North, Vista del Camino South, Roosevelt and McKellips) and passive low flow linkages that connect each of these major lake features. These lakes not only serve as a recreation and aesthetic component of the project but also serve as one of the major infrastructure components of the entire system where they serve as the water reservoirs used to facilitate the irrigation needs of the turf lined channel that defines IBW. These lakes and their infrastructure of wells, piping, liners and interconnected waterways all require major renovation and mitigation measures to save water and to preserve their functionality. These lakes are only one example of the many infrastructure issues that this master plan is addressing.

The goal of this master planning effort and its focus is on revitalizing, restoring and reinvigorating IBW by developing a "roadmap" for that effort. The City of Scottsdale is committed to developing a master plan that can be utilized to guide the IBW parks and lakes back to a vibrant and user friendly recreation City asset while respecting the primary corridor function of flood control. The City of Scottsdale has made the commitment to refocus its energy, economics and policies on the reestablishment of this premier public open space as a top priority for current and future generations to enjoy and cherish.

One of the primary objectives of this master planning effort is to re-establish IBW to the same level as other great linear parks that have shifted paradigms and perceptions; places like Rio Salado in Phoenix,

Central Park in New York, Olmsted's Linear Park in Atlanta and more recent parks like the High Line in New York City, the 606 in Chicago and Klyde Warren Park in Dallas. These parks are keenly focused on the need for people to connect with urban nature for the benefit of revitalizing, restoring and reinvigorating their spirit, health and connecting with their community and neighbors.

Background

In the early 1960s, The City of Scottsdale and the U.S. Army Corps of Engineers (USACE) tussled over whether IBW should be a cement-lined channel or a grass-lined greenbelt. The USACE initial plan that was congressionally approved in 1961 was a seven mile concrete channel that was on average 23 feet deep and 170 feet wide. The citizens of Scottsdale were not in favor of this approach and the City and its active citizen base created in 1964 a committee called the Scottsdale Town Enrichment Program (STEP). The STEP committee worked as an advisory group to the City council, and City departments advising them on the best approach for IBW. The STEP committee formulated a strong anti-channel message that resulted in the citizens of Scottsdale voting down a 1964 county wide flood control district bond that would have resulted in channelizing the wash. The citizens of Scottsdale in the 1970's also voted down a local sales tax increase that was targeted to fund the purchase of private property for the development of the envisioned grass lined channel. This lead the City of Scottsdale to the development of several ordinances including a floodplain ordinance that created an easement through the adjacent IBW private properties that allowed the land ownership to remain largely privately held while the majority of the actual wash became public property. The ordinance had the additional benefit of controlling encroachment into the IBW corridor. In addition to these ordinances the STEP committee recommendations for a different approach to flood control one that focused on a greenbelt not a concrete channel. This approach was supported by a feasibility study that initiated the conversations with the City of Scottsdale, USACE, congressional leaders in Washington, and many concerned and very active citizens. The combination of these efforts and many other factors resulted in federal funds being committed to the project in 1974 with the long term payback of this investment backed by the City of Scottsdale. Over the next six years the final touches to the IBW greenbelt system that we know today were finalized and resulted in the IBW corridor that is today one of the crown jewels of the City of Scottsdale.

Approach to Performing the Required Services – Project Challenges

Many of the IBW's parks and lakes within the City were constructed in the 1970's and now many of the greenbelt's facilities and related infrastructure are reaching the end of their life cycle. The existing elements within the parks, such as the lakes, low flow channels, irrigation systems, ramadas, basketball courts, baseball fields, playgrounds, splash pads, restroom facilities, and more are in need of upgrades, rehabilitation and improvements. The project challenges are multi-faceted due to the complexity and the age of the infrastructure, facilities, requirements for ADA, changes in lighting type and control, changes in modes of travel within the corridor, and other project factors that have to be addressed. To approach these challenges will require identification and prioritization of the backbone infrastructure elements and features that must be replaced due to the fact that they support much of the surrounding features and elements within IBW. The approach will be to address those infrastructure features and elements as the first and highest priority.

Lake Improvements:

One of the primary features associated with the backbone infrastructure elements of IBW is the corridors water supply and lake features. The water supply and lake features are the heart of IBW providing the water that established the aesthetic and recreational benefits while also providing the necessary and required water resource for the vegetation growth that defines the corridor. The upgrades, rehabilitation and improvements required to this major IBW infrastructure component will have a positive and long lasting impact on the project corridor. The improvements to the water supply system will be extensive providing improved efficiency, control and better monitoring of water use through this City owned and maintained system. The upgrades anticipated with these water supply systems will also result in tangible

water and energy savings due directly to the efficiency of the new equipment compared to the existing system.

The proposed lake improvements will be vast and extensive and will include but not limited to upgrading the lakes to modern standards with regards to City equipment for irrigation delivery and water supply, meeting federal and state water quality mandates/requirements, reduction of water seepage with improved liner materials, reduction in erosion water loss through improved lake edges, improved lake depths for water quality and volume, improved aeriation and circulation, increase efficiency, ease of maintenance, and enhanced aesthetics. These planned improvements to each of IBW's water supply wells, pumps, lakes and their associated infrastructure has a direct and corresponding effect on the lake itself and the surrounding irrigation system and the landscape that they sustain. The improvements should result in increased efficiency in their respective operations and cost savings associated with improved monitoring, efficiencies and maintenance.

Dam Improvements

Repairing the dam and improving the esthetics of the existing levee at McKellips Lake is another one of the main components of the entire IBW water supply and delivery systems that will have multiple benefits to IBW. The current dam is leaking and has resulted in water levels in the lake having to be reduced to minimize water loss through the dam. This water reduction has resulted in additional degradation of the lake liner and edge system and water quality. The upgrades and updates to this lake system and the associated dam will result in significant cost savings that will include but not be limited to the following:

1. Immediate elimination of dam leakage onto adjacent public walkways
2. Reduced water usage with new dam, improved lake liner and edge treatments
3. Significant improvement in water quality and reduction to water treatment cost due to the enhancements involving a greatly improved lake aeration and circulation system thus reducing the need for heavy chemical use and the manual removal of algae and other undesirable plant growth that is a direct result of poor water aeration or circulation.
4. Improved lake edge aesthetics and corresponding reduction in maintenance and reduction in water loss

Civil Improvements Benefits:

The proposed civil improvements throughout the IBW corridor vary from mile to mile but in general, the improvements provide many benefits including but not limited to:

1. Upgrading pathway widths – improvements will widen the IBW pathways to better accommodating the diversity of users such as runners, bikers, users with strollers and wagons, scooters, and users with disabilities;
2. Upgrading the irrigation system to minimize the overspray of irrigation water onto the adjacent IBW multi-use pathways;
3. Improved storm water drainage systems that will drain the areas that experience frequent standing water thus reducing the potential hazard to park users, improves vector control, and increases the longevity of the concrete and asphalt that is often inundated by the storm water flows;
4. Improving the conditions of the open low-flow channel connector system between the lakes – the improvements envisioned will improve the open channel by deepening the channels wherever possible, creating a stable edge treatment, and investigating a more stable and secure lining system.

Landscape & Hardscape Improvements Benefits:

The portion of the IBW Greenbelt that is being master planned is an oasis of parks, lakes, and paths traversing 2 miles north from McKellips Road up to Thomas Road through the heart of Scottsdale. It has been well proven by numerous studies that open space and parks improve property values. There is a significant link between the increased value of a property and its proximity to parks, greenbelts and other

green spaces. Indian Bend Wash is a prime example of how a park development can transform an area. The result of the improvements within and adjacent to Indian Bend Wash are well documented and the corridors positive effects on the community can be seen in the high daily use of the corridor and the quality and diversity of the developments that surround and link into the Indian Bend Wash corridor.

The programmed improvements included will not diminish the positive effects that Indian Bend has on the surrounding social and economic environment. The improvements envisioned as part of this master plan addresses numerous components associated with IBW in a general fashion. These improvements include but would not be limited to the following:

1) Improved pathway widths to accommodate the diversity of users and varying modes of travel
2) Improved lake infrastructure (liners, edge treatments, aeriation, circulation)
3) Improved dam at McKellips Lake
4) Improved tree planting and tree replacement strategy
5) Improved parking and corridor access
6) Improved public access throughout the corridor
7) Improved lighting throughout the corridor
8) Improved restrooms and public facilities
9) Improved picnic ramadas
10) Improved skate plaza elements and features
11) Improved play equipment for inclusive play of all abilities
12) Incorporation of new splash pad features
13) Improved sport courts
14) Improved dog park
15) Improved lake access for public use and enjoyment

Irrigation Improvements Benefits:

The IBW is defined by many as a "greenbelt" due to the vast swaths of lush green grass that envelope the corridor. This grass not only defines IBW it is a key component in this facility's ability to safely, effectively and efficiently control the flood waters that flow within the IBW banks. The turf that both defines and creates the flood control channel that is IBW is only possible due to an intricate and connected irrigation system. A well maintained irrigation systems has a finite service life. Typically a 30 year old irrigation system is considered a good return for the investment. Pump systems have a much shorter service life due to the nature of that equipment and its daily use, usually in the 10 to 15 year range. The IBW irrigation and pump systems are far beyond these typical ranges and in need of replacement. There are multiple benefits that can be had through the installation of a new irrigation, pump and control system for IBW. These include but would not be limited to:

1. Lower water use - as the irrigation system wears out the equipment loses its efficiency and accuracy. A new irrigation system designed correctly can result in significant water savings.
2. A new state of the art turf irrigation system can reasonably be expected to save 10 to 15 percent of water per year compared with the old system. Lower electrical power use – the new pump systems are much more efficient than those manufactured in the past. The use of variable frequency drives (VFD) that slow down the pump motors to only the speed necessary to meet the irrigation demand can save as much as 30% in electrical usage. Older pump systems were sized for maximum demand and would always run at that capacity no matter if the system required that volume or not. The newer VFD pumps measure the volume flow and pressure and operate at only the level necessary to maintain the pressure and flow demand. Irrigation systems demand is constantly changing and is rarely at 100% except for short periods.
3. Shorter water windows – A properly designed irrigation system can be programmed to deliver the required water in less time during the evening hours when evaporation is at its lowest and the

park facilities are not in use. Typically water windows of 6 hours (10 pm to 4 am) can be maintained. This allows for maximum use of the park facilities.

4. Elimination of potable water use – There are opportunities for the City of Scottsdale to partner with the School District and evaluate the possibility of converting the multi-use fields at Yavapai Elementary School from the potable water supply at the school to the new lake water system on the adjacent Vista Del Camino South Park. This will eliminate the use of approximately 50 acre feet
(16,292,550 gallons) of potable water use and the associated high water cost from the school budget annually.
5. Multi-use fields will be more playable – a new irrigation system will generate higher quality turf in less run time (shorter water window). This will result in more playable fields that can be used for more hours per week.
6. An irrigation system design that minimizes pathway overspray
7. An irrigation system designed to provide supplemental and deep water to existing trees that have become accustomed to water from leaking lakes and channels

Landscape Design Theme

The landscape design theme for the project is twofold, the primary focus will be to build upon the success of the existing vegetation and then to focus new plantings that help to reinforce the existing while building towards a "Southwest Desert Oasis" landscape theme influenced by the confluences of the IBW with its wide swath of open greenery of existing mature trees that will be protected in place along with a mixture of native (where feasible) and subtropical plant materials. The landscape design theme emphasizes transparency in the planting design which takes on a more structured pattern approach with a combination of plant material and hardscape elements. Collectively, these well-adapted plants create a distinctive Southwest Desert Oasis look that connects the Indian Bend Wash plant palette to the Southwest region's natural landscape and climate. The palette of selected plant material will be grouped and arranged to create interesting patterns, flowing lines, open spaces, textures, color combinations, and structured design forms. Inert hardscape material arrangements will include a more intensified use of color, textures and patterns which heighten the organization of the planting design, further enhancing the lush landscapes of the existing IBW corridor/character area.

Sustainability principles will be integrated in the landscape design reflected in the use of salvaged trees, new arid low water using plants and a selected mixture of semi-tropical and riparian plants. The master plan will identify the use of water harvesting principles, low impact development components, along with selective use of decomposed granite and angular crushed rock used as ground plane surfacing materials in planting areas, swales, and berms in an effort to promote a water conserving landscape. All the plant material listed on the Arizona Department of Water Resources low water use plant list combined with the City's Design Guidelines with specific attention to the unique urban character of the IBW will be applied to this corridor.

Existing Mature Trees

Indian Bend Wash is lined with mature trees some that have root systems directly connected to the lakes and low flow channels. Concerns regarding the longevity of these trees once they have been "cut off" from the leaking lakes and channels remains a concern and a design issue. Selective tree removals may be required from the lakes and channel edges as that interface is critical for the integrity of the liner system, water quality, and the safety of the public. There are many existing trees that were planted during special events as well as memorials and special care/coordination will be required when evaluating any tree's potential removal and or replacement. The lakes and low flow channels geometry will be designed in a manner as to minimize the impact to existing healthy trees wherever possible and the new irrigation system will be designed to supplement these trees with the water that they have become accustomed to utilizing.

Parking

Parking for recreational and open space has several standards that are applied when there are organized sports that are being accommodated (60-70 cars per field). Within IBW there is such a wide diversity of uses from passive walking, disc golf, bird watching, bicycling, to active soccer, softball, and baseball that the standards for organized sports do not address the unique nature of IBW parking. The master plan was developed based upon field observations and staff history that indicate the parks current parking is insufficient. There are a number of existing parking areas that are also not efficiently designed and lack the necessary space to adequately accommodate the size and number of vehicles that are now frequenting the corridor. The master plan indicates that parking can be greatly improved through a wide variety of approaches including improving existing parking areas, expanding them where feasible, and adding parking areas in strategic new areas. The targeted parking improvements shown on the master plan will need further refinement once a more detailed survey can be obtained and the existing and new parking areas can be evaluated.

Lighting

J2 Engineering and Environmental Design (J2) was retained to complete a lighting evaluation for the Indian Bend Wash Master Plan. The Indian Bend Wash is a flood control project that traverses 11 miles through the City of Scottsdale, Arizona, containing pathways, parks, lakes, and golf courses.

J2's lighting evaluation focuses on a two (2) mile segment of the Indian Bend Wash, between McKellips Road and Thomas Road.

J2 developed a technical memorandum in regards to our lighting effort that evaluated existing local and national lighting requirements, identify areas along the study segment that does not provide adequate lighting, and to provide recommendations for the future lighting design along this study segment. That technical memo is attached to the end of this submission document.

Permitting/Drainage Engineering

Indian Bend Wash serves as the primary drainage corridor for the City of Scottsdale. The watershed is over 100 square miles and also includes portions of Phoenix, Paradise Valley, Salt River Pima-Maricopa Indian Community, and Tempe. In the 1970's, the City designated the wash as a grass-lined flood-control channel. In the late 70's through to the mid 80's, USACE constructed levees along the channel in critical areas to bolster the flood control aspect of the channel.

There have been multiple major hydrologic and hydraulic studies of the channel completed by the FCDMC. Most recently, the Lower Indian Bend Wash Area Drainage Master Study (LIBW ADMS) was completed in 2018 and encompasses the subject reach of Indian Bend Wash. Upstream studies include Middle Indian Bend Wash ADMS and the East Shea ADMS. The studies consist of hydrology and hydraulics using FLO-2D modeling software.

Indian Bend Wash contains multiple Federal Emergency Management Agency (FEMA) Flood Zones, including Zone AE Floodway, Zone AE 100-year floodplain, Zone X protected by levee, and Zone X 500-year floodplain. Table 1 shows the effective peak flows for Indian Bend Wash at the subject reach.

Table 1 - Summary of Discharges		**Peak Discharges (cfs)**			
Flooding Source and Location	**Drainage Area (Sq. Miles)**	**10% Annual Chance**	**2% Annual Chance**	**1% Annual Chance**	**0.2% Annual Chance**
Indian Bend Wash at Indian School Rd	100	4,000	14,000	20,000	43,000

Per FEMA requirement, proposed improvements will have to maintain or improve historic flooding conditions in terms of water surface elevations and floodplain extents. In addition to the FEMA requirements, coordination with USACE is required. Minimum levee freeboard must be maintained as

well. The proposed improvements will require excavation within a jurisdictional water of the US. Therefore, it is anticipated that a 401/404 and 408 permits will be required for the project.

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Date: October 29, 2018

From: Mark Poppe, PE

Job Number: 18.1135

RE: Lighting Evaluation
Indian Bend Wash Master Plan
McKellips Road to Thomas Road

INTRODUCTION

J2 Engineering and Environmental Design (J2) was retained to complete a lighting evaluation for the Indian Bend Wash Master Plan. The Indian Bend Wash is a flood control project that traverses 11 miles through the City of Scottsdale, Arizona, containing pathways, parks, lakes, and golf courses.

This lighting evaluation focuses on a two (2) mile segment of the Indian Bend Wash, between McKellips Road and Thomas Road. See figure 1 for vicinity map.

The objective of this technical memorandum is to evaluate existing local and national lighting requirements, identify areas along the study segment that does not provide adequate lighting, and to provide recommendations for the future lighting design along this study segment.

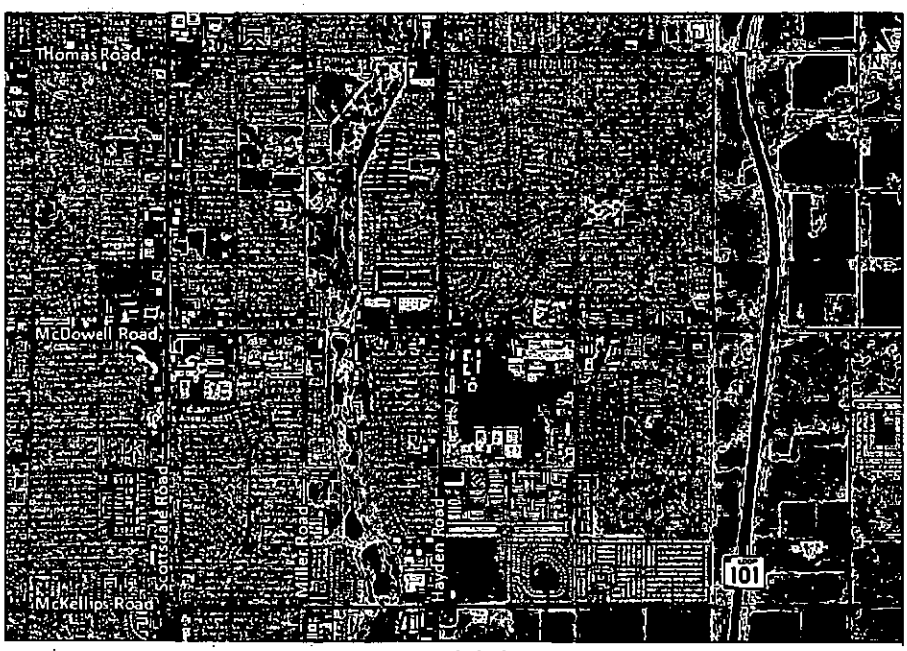


Figure 1 - Vicinity Map

PATHWAY LIGHTING DESIGN GUIDELINES

Roadway Lighting (ANSI/IES RP-8-14)

The Illuminating Engineering Society's (IES) publication Roadway Lighting (ANSI/IES RP-8-14) is commonly used by many public agencies as the basis for establishing the appropriate lighting level design values for lighting of roadway segments, intersections, bikeways, and pedestrian ways.

The ANSI/IES RP-8-14 criteria for lighting design guidelines are based upon the roadway classification and the type of pedestrian conflict area. The three classifications for the pedestrian conflict areas are listed below:

- *High* – Areas with significant numbers of pedestrians expected to be on the sidewalks, or crossing the streets during darkness. Examples are downtown retail areas, near theaters, concert halls, stadiums, and transit terminals.

- *Medium* – Areas where lesser numbers of pedestrians utilize the streets at night. Typical are downtown office areas, blocks with libraries, apartments, neighborhood shopping, industrial, parks, and street with transit lines.

- *Low* – Areas with very low volumes of night time pedestrian usage. These occur in any of the cited roadway classifications but may be typified by suburban streets with single family dwellings, very low density residential developments, and rural or semi-rural areas.

The ANSI/IES RP-8-14 recommended horizontal and vertical lighting design values for the high, medium, and low pedestrian conflict areas are presented in Table 1, Table 2 and Table 3 respectively.

Table 1 - ANSI/RP-8-14 Recommended Values for High Pedestrian Conflict Areas

Maintain Illuminance Values for Walkways			
	E_{avg} (lux/fc)	$E_{V\,min}$ (lux/fc)	E_{avg}/E_{min} (lux/fc)
Mixed Vehicle and Pedestrian	20.0/2.0	10.0/1.0	4.0
Pedestrian Only	10.0/1.0	5.0/0.5	4.0

Table 2 - ANSI/RP-8-14 Recommended Values for Medium Pedestrian Conflict Areas

Maintain Illuminance Values for Walkways			
	E_{ave} (lux/fc)	EV_{min} (lux/fc)	E_{avg}/E_{min} (lux/fc)
Pedestrian Areas	5.0/0.5	2.0/0.2	4.0

Table 3 - ANSI/RP-8-14 Recommended Values for Low Pedestrian Conflict Areas

Maintain Illuminance Values for Walkways			
	E_{ave} (lux/fc)	EV_{min} (lux/fc)	E_{avg}/E_{min} (lux/fc)
Rural/Semi-Rural Areas	2.0/0.2	6.0/0.06	10.0
Low Density Residential Areas (2 or fewer dwellings units per acre)	3.0/0.3	0.8/0.08	6.0
Medium Density Residential Areas (2.1 to 6.0 dwellings units per acre)	4.0/0.4	1.0/0.1	4.0

The values provided in the tables above are utilized for pedestrian areas located within the right of way. In addition to providing guidance on the travel ways, a key element for pedestrian and bicycle lighting includes the consideration of safety and security to the users.

Generally, the study section of Indian Bend Wash provides low pedestrian conflict as the pathway dissects landscaped portions of the wash, with the landscaping providing a separation between the pathway and roadways. However, the study section of the pathway does provide crossings of roadways at Roosevelt Street and Murray Lane, and provides connections to existing parking lots. Therefore, these locations may require consideration of the high and medium pedestrian conflict area criteria.

AASHTO Roadway Lighting Design Guide

The American Association of State Highway and Transportation Officials (AASHTO) Roadway Lighting Design Guide provides a basis for establishing appropriate lighting level design values for roadways, sidewalks, and pedestrian ways and bicycle ways. Roadway lighting design criteria is typically dependent upon the functional classification of the roadway and the general land uses adjacent to the roadway. The minimum lighting design values for the illuminance method is dependent upon the pavement type or reflectance.

The recommended minimum maintained lighting design values for illuminance along pedestrian ways and bicycle ways are provided in **Table 4**.

Table 4 – AASHTO Illuminance Design Values

	Average Maintained Illuminance				Illuminance Uniformity Ratio
	R1 (fc) (min)	R2 (fc) (min)	R3 (fc) (min)	R4 (fc) (min)	avg/min (max)
Pedestrian Ways and Bicycle Ways	1.4	2.0	2.0	1.8	3:1

Of the four pavement types, R1 represents a Portland cement concrete surface. The study section of the Indian Bend Wash pathway is primarily a concrete surface. Therefore, the illuminance design values for the R1 surface shown in **Table 4** would represent the most appropriate lighting design values for the study section of Indian Bend Wash.

LIGHTING FOR DESIGN FOR MIDBLOCK CROSSINGS

The FHWA *Informational Report on Lighting Design for Midblock Crosswalks* (FHWA-HRT-08-053) was published in 2008. The report provides information on lighting parameters and design criteria that should be considered when installing fixed roadway lighting for midblock crosswalks. Pedestrian visibility distance is defined in the report as the distance at which a driver can see a pedestrian well enough in order to be able to respond appropriately to the pedestrian's presence. The report identifies that the greater the visibility distance, the more time a driver will have to react to the pedestrian before a conflict occurs. The report notes that, at night, luminance contrast is the primary means by which an object is detected, and therefore, providing adequate luminance is the basis for roadway lighting design.

Several factors that affect the luminance contrast between pedestrians and their visual backgrounds are identified in the report, which includes: fixed roadway lighting, headlamp lighting, pedestrian clothing, and the characteristics of the visual backgrounds. The visual background for most roadway pedestrian crosswalks consist of the roadway pavement surface and the environment surrounding the roadway. The report states that bright roadway surfaces or bright off-road installations, such as gas stations, bank, or shopping centers, increase background luminance and reduce contrast, making pedestrian detection more difficult. The lighting design level for pedestrian crossings should provide adequate lighting, even with a bright background. Typically, the brighter the background, the higher the vertical illuminance required in order for a driver to clearly see a pedestrian in a crosswalk.

The findings in the report are based on experiments of driver performance with regard to the detection of pedestrians in midblock crossings. The report utilizes vertical illuminance is the primary metric for the evaluation for the efficiency of the lighting system. Vertical illuminance is described as the illuminance on a vertical surface. The research considered in the report is based on measurements of the vertical illuminance on an object 5 feet above the road surface.

The report's findings indicate that a vertical illuminance level of 20 lux (approximately 2 fc), measured at a height of 5 feet from the roadway surface, allowed drivers to detect pedestrians in midblock crosswalks at adequate distances under rural conditions. Furthermore, a higher level of vertical illuminance may be required for crosswalks when there is glare from opposing vehicles, the crosswalk is located in an area with high ambient light levels, or when the crosswalk is located at a lighted intersection.

To illuminate the side of the pedestrian facing an approaching vehicle, this research suggests the luminaires be installed at least 10 feet in advance of the crosswalk. Additionally, the research notes that the luminaire selected will influence the best mounting height and location of the luminaire, with respect to the crosswalk.

PARKING LOT LIGHTING DESIGN GUIDELINES

The Illuminating Engineering Society's (IES) publication *Lighting for Parking Facilities* (IES RP-20-14) provides recommendations for interior and exterior lighting practices for vehicular and pedestrian traffic in parking facilities. IES RP-20-14 provides illuminance recommendations for parking lots and parking garages. The recommended maintained illuminance values for parking lots are shown in **Table 5** below.

Table 5 - RP-20-14 Recommended Values for Parking Lots

R4 (Asphalt) Surfaces	Recommended Maintained Illuminance Targets		
LZ4, LZ3, LZ2, and LZ1*	Horizontal Targets E_h (lux/fc) (min)	Vertical Targets E_v (lux/fc) (min)	E_{max}/E_{min} (lux/fc)
Pre-curfew	5.0/0.5	2.5/0.24	15:1
Post-curfew	2/0.19	1/0.095	15:1

*Lighting Zones based on ambient lighting

IES RP-20-14 provides recommended illuminance values for both asphalt and concrete surfaces, which are also based upon the surrounding ambient lighting. The recommended minimum illuminance values shown in **Table 5**, for R4 (asphalt) surfaces, and are based on lighting zones with low to high ambient lighting. Located along the study segment of the Indian Bend Wash is sports field lighting and roadway lighting. Therefore, some level of ambient lighting will be provided within the area.

Along the study segment, all identified public parking lots were constructed with an asphalt surface.

CITY OF SCOTTSDALE DESIGN GUIDELINES

City of Scottsdale's Design Standards & Policies Manual (DSPM), provides guidance and standards on street lighting in Chapter 5. Section 5-11.100 states that street lighting in the City is divided into three main lighting types (Rural, Suburban, and Urban):

- *Rural Areas* – Including ESL areas as defined by the city and areas with adjacent zoning intensity of less than 2 dwelling units per acre. These areas may also include smaller locations of more intense development but maintain rural development characteristics. Generally, has Limited Street lighting focusing only on conflict points (intersections & Pedestrian crossings) and significant curves (at or below the design speed).

- *Suburban Street Lighting* – All other areas not otherwise specifically defined by the city. Generally, has partial lighting focusing on conflict points, significant curves (at or below the design speed) as well as moderate corridor lighting but does not require photometric analysis. Standards such as IESNA are not significantly considered.

- *High Pedestrian Urban Activity Areas* – Generally, has full lighting, focusing on conflict points, significant curves (at or below the design speed) as well as corridor lighting and may require photometric analysis especially at critical conflict locations such as crosswalks. Standards such as IESNA are considered in the design process.

Per Appendix 5-11C, the two (2) mile segment of the Indian Bend Wash, between McKellips Road and Thomas Road is categorized under the Suburban Street Lighting area.

Furthermore, the City of Scottsdale's DSPM provides illumination requirements for street lighting based upon roadway classification. Per section 5-11.400, when photometric calculations are performed, the illuminance method is to be used.

Currently, required illumination levels are not provided for dedicated pedestrian pathways/trails by the City of Scottsdale.

NEARBY CITY DESIGN GUIDELINES

City of Tempe

According to the City of Tempe's Zoning and Development Code, Section 4-803(D)(6), "[e]xterior pedestrian pathways and adjacent landscape areas within twenty (20) feet of the pathway shall be illuminated from dusk to dawn, with one-half (0.5) foot-candle of light at finish grade."

Additionally, Section 4-803(D) (9) of City of Tempe's Zoning and Development Code provides parking lot lighting design guidance. From dusk to dawn, parking spaces shall be illuminated with two (2) foot-candles, and parking lot drive aisles shall be illuminated with one (1) foot-candle.

City of Mesa

In accordance with the City of Mesa's 2017 Engineering & Design Standards, Section 906.02 states that the City designs lighting per the RP-8-00. Section 906.11 indicates that, "[s]eparate calculations for the pedestrian areas are not required, even if the pedestrian sidewalk is separated from the street curb."

EXISTING LIGHTING CONDITIONS

Data Collection

J2 performed a field review to document the existing lighting provided along the 2-mile study segment of the Indian Bend Wash pathway, and its corresponding parking lots. The general locations, spacing, and mounting heights of the poles were documented.

The poles located along the pathway are typically spaced between 75 feet and 85 feet. The poles were generally measured to a height of approximately 16 feet. Two (2) luminaire housings were primarily observed to be utilized throughout the two (2) mile segment of Indian Bend Wash. Both luminaires appear to be high pressure sodium (HPS) fixtures.

Figure 2 - Luminaire Housing - Type A

Figure 3 - Luminaire Housing - Type B

As previously mentioned, along the study segment, all identified public parking lots were constructed with an asphalt surface.

Based on the field review, there is an inconsistency with lighting in the parking lots along the study segment of the Indian Bend Wash. Various luminaires and mounting heights were documented in the parking lots located throughout the study segment. Luminaire types that were observed include: cobra head, shoebox, prismatic fixtures, along with the pathway style fixtures found along the trail. Additionally, some parking lots were found to be utilizing LED luminaires.

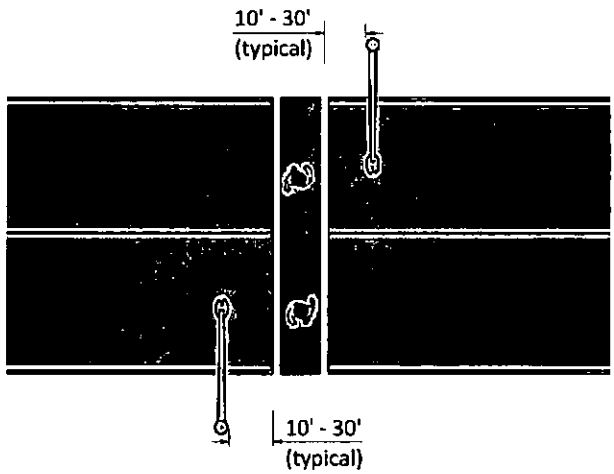
Midblock Crossings

The study section of the Indian Bend Wash pathway provides two (2) midblock crossings of roadways, which are located along Roosevelt Street and Murray Lane.

The Roosevelt Street crossing provides two (2) pathway lights, one (1) located approximately 50 feet south of the crosswalk, and the other located approximately 30 feet north of the crosswalk. Additionally, a street light is located approximately 30 feet to the east of the crosswalk, which utilizes a cobra head luminaire.

The Murray Lane crossing provides a pathway light, approximately 55 feet north of the crosswalk, and an additional pathway light approximately 40 feet south of the crosswalk. Additionally, a roadway light is mounted to an overhead power pole, approximately 25 feet south of the crosswalk.

The existing midblock crossings do not conform to the recommendations in the FHWA-HRT-08-053 publication.



EV_{avg} (lux/fc) = 20.0/2.0

Figure 4 – Recommended Midblock Crossing Lighting

PATHWAY LIGHTING ANALYSIS

Lighting design calculations are typically performed using computer programs. For the purposes of this analysis, AGi32 was utilized to calculate the existing light levels along a typical section of the Indian Bend Wash. The values for the average and uniformity of the light levels are the primary measurements for assessing the adequacy of the existing lighting.

The lighting analysis for the pathway was based on a typical 80 foot spacing of light poles. A calculation zone was set between the centers of two poles. The lighting analysis was based upon a 150W HPS luminaire, mounted at a height of 16 feet. Additionally, a lamp lumen depreciation factor (LLD) of 0.90, and a luminaire dirt depreciation (LDD) factor of 0.90 was assumed, resulting in a light loss factor (LLF) of 0.81. Horizontal and vertical illuminance calculation grids were located with a point spacing of 2 feet. The vertical illuminance calculation grid was located in the center of the pathway, and was 5 feet in height. The typical calculation zones is shown in **Figure 5**.

Based upon these values, the horizontal and vertical illuminance values for a typical 80' segment is shown in **Table 6** below.

Table 6 – Lighting Analysis Results (Typical 80' Segment)

	Horizontal Illuminance (fc)	Vertical Illuminance (fc)
Average	2.42	1.41
Maximum	11.2	5.7
Minimum	0.6	0.2
Avg/Min	4.03	7.05

The average horizontal illuminance of 2.42 foot-candles exceeds the ANSI/IES RP-8-14 and the AASHTO Roadway Lighting Design Guide's recommended horizontal illuminance values. Additionally, the average vertical illuminance exceeds the ANSI/IES RP-8-14 recommended illuminance values, for all conflict area types. The uniformity ratio satisfies the recommended values per the ANSI/IES RP-8-14, however is larger than the AASHTO uniformity ratio of 3:1, and therefore does not meet this standard.

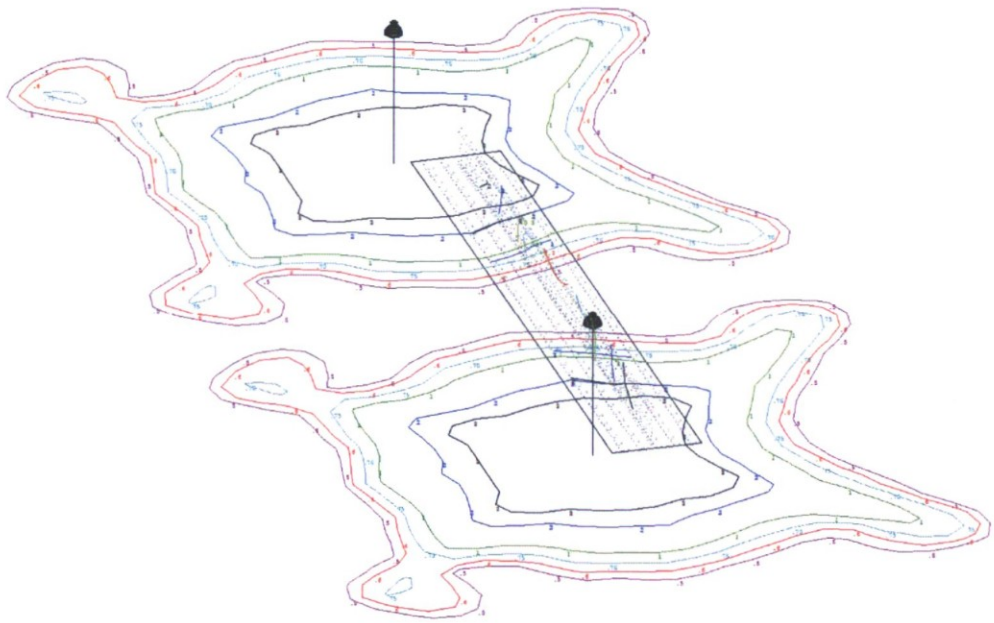


Figure 5 - Typical 80' Calculation Zone

PARKING LOT LIGHTING ANALYSIS

Due to the inconsistencies with the luminaires and mounting heights observed in the parking lots along the two (2) mile study segment, a specific lot was chosen for the analysis. The parking lot located along

Roosevelt Street, approximately 650 feet east of 76th Street, was chosen for the analysis. Four (4) light poles are provided in this parking lot, with luminaires similar to those that are found along the pathway. This parking lot was chosen based on the mounting heights of the luminaires, with a mounting height of approximately 16 feet, which was found to be the lower mounting heights of luminaires in parking lots along the study segment of the Indian Bend Wash. Lower mounting heights generally provide a less uniform light level. Therefore, this lot may be considered the least favorable condition, from a lighting perspective.

A horizontal illuminance calculation grid was located within the parking lot, as well as two (2) vertical illuminance calculation grids, providing lighting levels for each direction of travel. The vertical illuminance calculation grids were located in the vehicle travel way, perpendicular to both directions of travel. The calculation zones for the parking lot is shown in **Figure 6**.

Table 7 – Lighting Analysis Results (Parking Lot)

	Horizontal Illuminance (fc)	Vertical Illuminance (fc) – Direction 1	Vertical Illuminance (fc) – Direction 2
Average	1.32	0.94	0.61
Maximum	15.1	1.7	1.5
Minimum	0.2	0.4	0.3
Max/Min	75.5	4.25	5.0

The minimum horizontal illuminance of 0.2 foot-candles falls below the IES RP-20-14 recommendation for a horizontal illuminance minimum of 0.5 foot-candles for pre-curfew conditions. However, the minimum vertical illuminance values, for both directions, exceed that of both pre- and post-curfew recommended vertical illuminance values. The maximum to minimum ratio for horizontal illuminance is larger than the recommended value of 15:1, and therefore does not meet this standard.

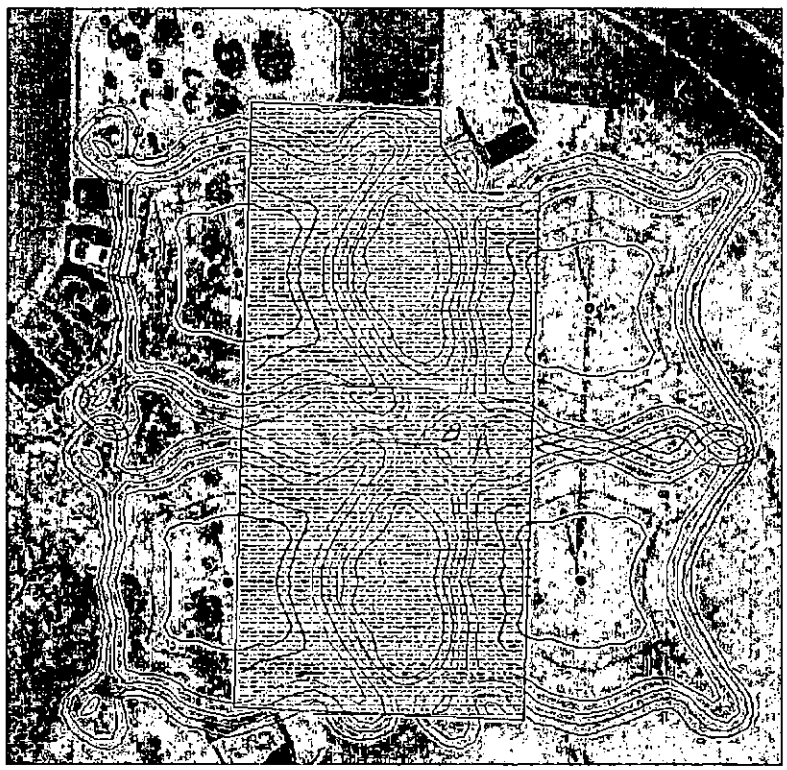


Figure 6 – Parking Lot Calculation Zone

RECOMMENDATIONS AND CONCLUSIONS

This lighting evaluation focuses on a two (2) mile segment of the Indian Bend Wash, between McKellips Road and Thomas Road. The objective of this technical memorandum is to evaluate existing local and national lighting requirements, identify areas along the study segment that does not provide adequate lighting, and to provide recommendations for the future lighting design along this study segment.

A lighting analysis was completed utilizing AGi32 to calculate the existing light levels along a typical section of the Indian Bend Wash. The analysis revealed that a horizontal illuminance value of 2.42 foot-candles is observed along a typical 80' segment of the Indian Bend Wash, which exceeds the ANSI/IES RP-8-14 and the AASHTO Roadway Lighting Design Guide's recommended horizontal illuminance values. Additionally, the average vertical illuminance exceeds the ANSI/IES RP-8-14 recommended illuminance values, for all conflict area types. The uniformity ratio satisfies the recommended values per the ANSI/IES RP-8-14 recommended values.

It is recommended that future path lighting be designed to comply with the RP-8-14 values of:

$$E_{avg}\ (lux/fc) = 20.0/2.0$$
$$EV_{min}\ (lux/fc) = 10.0/1.0$$
$$E_{avg}/E_{min}\ (lux/fc) = 4.0$$

This will comply with RP-8-14 for mixed vehicle and pedestrian in high conflict areas, and still be comparable to the existing path lighting.

Providing a consistent LED fixture for each pole throughout the 2-mile study segment of Indian Bend Wash would provide a uniform appearance. Additionally, selecting the appropriate LED luminaire may improve the uniformity along the pathway, and thereby may provide an improved sense of security at night for path users.

It is recommended that the roadway lighting near at-grade crossings of the Indian Bend Wash pathways be located in accordance with the recommendations in the FHWA *Informational Report on Lighting Design for Midblock Crosswalks*.

Parking lot lighting, throughout the 2-mile study segment of the Indian Bend Wash, provides inconsistencies in the luminaires, poles, and mounting heights provided. Therefore, providing a standard luminaire throughout the parking lots located along Indian Bend Wash, if desired, may provide easier maintenance. However, mounting heights of the luminaires will need to be analyzed on a case-by-case situation, in order to insure that adequate lighting is being provided in each parking lot.

It is recommended that future parking lot lighting be designed to comply with RP-20-14 values for pre-curfew conditions:

$$\text{Horizontal Targets } E_h\ (lux/fc)\ (min) = 20.0/2.0$$
$$\text{Vertical Targets } E_v\ (lux/fc)\ (min) = 10.0/1.0$$
$$E_{max}/E_{min}\ (lux/fc) = 15{:}1$$

NO. 3

Development Application

CITY OF SCOTTSDALE

Development Application Type:
Please check the appropriate box of the Type(s) of Application(s) you are requesting

Zoning	Development Review	Signs
☐ Text Amendment (TA)	☐ Development Review (Major) (DR)	☐ Master Sign Program (MS)
☐ Rezoning (ZN)	☐ Development Review (Minor) (SA)	☐ Community Sign District (MS)
☐ In-fill Incentive (II)	☐ Wash Modification (WM)	Other:
☐ Conditional Use Permit (UP)	☐ Historic Property (HP)	☐ Annexation/De-annexation (AN)
Exemptions to the Zoning Ordinance	Land Divisions (PP)	☐ General Plan Amendment (GP)
☐ Hardship Exemption (HE)	☐ Subdivisions	☐ In-Lieu Parking (IP)
☐ Special Exception (SX)	☐ Condominium Conversion	☐ Abandonment (AB)
☐ Variance (BA)	☐ Perimeter Exceptions	Other Application Type Not Listed
☐ Minor Amendment (MA)	☐ Plat Correction/Revision	☑ MWMSP

Project Name: Indian Bend Wash Master Plan McKellips Road to Thomas Road

Property's Address: NA

Property's Current Zoning District Designation:

The property owner shall designate an agent/applicant for the Development Application. This person shall be the owner's contact for the City regarding this Development Application. The agent/applicant shall be responsible for communicating all City information to the owner and the owner application team.

Owner: Jeremy Richter, PE	**Agent/Applicant:** Jeremy Richter, PE
Company: City of Scottsdale, AZ	**Company:** City of Scottsdale, AZ
Address: 7447 E. Indian School Rd., Ste 205	**Address:** 7447 E. Indian School Rd., Ste 205
Phone: 480-312-7869 **Fax:**	**Phone:** 480-312-7869 **Fax:**
E-mail: JRichter@Scottsdaleaz.gov	**E-mail:** JRichter@Scottsdaleaz.gov
Designer: Jeff Engelmann, RLA, ASLA	**Engineer:** Jeff Holzmeister, PE
Company: J2 Engineering and Environmental Dsn	**Company:** J2 Engineering and Environmental Dsn
Address: 4649 E. Cotton Gin Loop Suite B-2	**Address:** 4649 E. Cotton Gin Loop Suite B-2
Phone: 602-438-2221 **Fax:** 602-4138-2225	**Phone:** 602-438-2221 **Fax:** 602-4138-2225
E-mail: jengelmann@j2design.us	**E-mail:** jholzmeister@j2design.us

Please indicate in the checkbox below the requested review methodology (please see the descriptions on page 2).

- *This is not required for the following Development Application types: AN, AB, BA, II, GP, TA, PE and ZN. These applications[1] will be reviewed in a format similar to the Enhanced Application Review methodology.*

☐ **Enhanced Application Review:** I hereby authorize the City of Scottsdale to review this application utilizing the Enhanced Application Review methodology.

☐ **Standard Application Review:** I hereby authorize the City of Scottsdale to review this application utilizing the Standard Application Review methodology.

J. Richter
Owner Signature

J. Richter
Agent/Applicant Signature

Official Use Only Submittal Date: Development Application No.: 9-UP-2019 9/12/2019

Development Application
Review Methodologies

Review Methodologies

The City of Scottsdale maintains a business and resident friendly approach to new development and improvements to existing developments. In order to provide for flexibility in the review of Development Applications, and Applications for Permitting, the City of Scottsdale provides two methodologies from which an owner or agent may choose to have the City process the application. The methodologies are:

1. ***Enhanced Application Review Methodology***

   Within the parameters of the Regulatory Bill-of-Rights of the Arizona Revised Statutes, the Enhanced Application Review method is intended to increase the likelihood that the applicant will obtain an earlier favorable written decision or recommendation upon completion of the city's reviews. To accomplish this objective, the Enhanced Application Review allows:

   - the applicant and City staff to maintain open and frequent communication (written, electronic, telephone, meeting, etc.) during the application review;
   - City staff and the applicant to collaboratively work together regarding an application; and
   - City staff to make requests for additional information and the applicant to submit revisions to address code, ordinance, or policy deficiencies in an expeditious manner.

   Generally, the on-going communication and the collaborative work environment will allow the review of an application to be expedited within the published Staff Review Time frames.

2. ***Standard Application Review Methodology:***

   Under the Standard Application Review, the application is processed in accordance with the Regulatory Bill-of-Rights of the Arizona Revised Statutes. These provisions significantly minimize the applicant's ability to collaboratively work with City Staff to resolve application code, ordinance, or policy deficiencies during the review of an application. After the completion the city's review, a written approval or denial, recommendation of approval or denial, or a written request for additional information will be provided.

   The City is not required to provide an applicant the opportunity to resolve application deficiencies, and staff is not permitted to discuss or request additional information that may otherwise resolve a deficiency during the time the City has the application. Since the applicant's ability to collaboratively work with Staff's to resolve deficiencies is limited, the total Staff Review Time and the likelihood of a written denial, or recommendation of denial is significantly increased.

In addition to the information above, please review the Development Application, and/or the Application for Permitting flow charts. These flow charts provide a step-by-step graphic representation of the application processes for the associated review methodologies.

Note:

1. Please see the Current Planning Services and Long Range Planning Services Substantive Policy Statements and Staff Review Timeframes for Development Applications, number III.

Development Application

Arizona Revised Statues Notice

CITY OF SCOTTSDALE

§9-834. Prohibited acts by municipalities and employees; enforcement; notice

A. A municipality shall not base a licensing decision in whole or in part on a licensing requirement or condition that is not specifically authorized by statute, rule, ordinance or code. A general grant of authority does not constitute a basis for imposing a licensing requirement or condition unless the authority specifically authorizes the requirement or condition.

B. Unless specifically authorized, a municipality shall avoid duplication of other laws that do not enhance regulatory clarity and shall avoid dual permitting to the maximum extent practicable.

C. This section does not prohibit municipal flexibility to issue licenses or adopt ordinances or codes.

D. A municipality shall not request or initiate discussions with a person about waiving that person's rights.

E. This section may be enforced in a private civil action and relief may be awarded against a municipality. The court may award reasonable attorney fees, damages and all fees associated with the license application to a party that prevails in an action against a municipality for a violation of this section.

F. A municipal employee may not intentionally or knowingly violate this section. A violation of this section is cause for disciplinary action or dismissal pursuant to the municipality's adopted personnel policy.

G. This section does not abrogate the immunity provided by section 12-820.01 or 12-820.02.

Submittal Date: _____ Project No.: 491 -PA- 19

Conditional Use Permit

Development Application Checklist

CITY OF SCOTTSDALE

Minimal Submittal Requirements:

At your pre-application meeting, your project coordinator will identify which items indicated on this Development Application checklist are required to be submitted. A Development Application that does not include all items indicated on this checklist may be rejected immediately and may result in additional fees. A Development Application that is received by the City is not complete until it is verified that the application meets the minimum submittal requirements to be reviewed.

In addition to the items on this checklist, to avoid delays in the review of your application, all Plans, Graphics, Reports and other additional information that is to be submitted shall be provided in accordance with the:

- requirements specified in the Plan & Report Requirements for Development Applications Checklist;
- Design Standards & Policies Manual;
- requirements of Scottsdale Revised Code (including the Zoning Ordinance); and
- stipulations, including any additional submittal requirements identified in the stipulations, of any Development Application approved that this application is reliant upon; and
- the city's design guidelines.

If you have any questions regarding the information above, or items indicated on this application checklist, please contact your project coordinator. His/her contact information is on the page 9 of this application.

Prior to application submittal, please research original zoning case history to find the original adopted ordinance(s) and exhibit(s) to confirm the zoning for the property. This will help to define your application accurately. The City's full-service Records Department can assist.

Digital Submittal:

For applications submitted digitally, please follow the plan and document submittal requirements below. All files shall be uploaded in PDF format. Provide one (1) full-size copy of each required plan document file. Application forms and other written documents or reports should be formatted to 8.5 x 11. A digital submittal Key Code is required to upload your documents and will be provided by your coordinator.

Key Code: _____

Submit digitally at: https://eservices.scottsdaleaz.gov/bldgresources/Cases/DigitalMenu

PART I -- GENERAL REQUIREMENTS

Req'd	Rec'd	Description of Documents Required for Complete Application. **No application shall be accepted without all items marked below.**
☒	☑	**1. Conditional Use Permit Application Checklist** (this list)
☒	☑	**2. Application Fee $** PD05B (subject to change every July)
☒	☑	**3. Completed Development Application Form** (form provided) • The applicant/agent shall select a review methodology on the application form (Enhanced Application Review or Standard Application Review). • If a review methodology is not selected, the application will be review under the Standard Application Review methodology. Prior to application submittal, please research original zoning case history to find the original adopted

		ordinance(s) and exhibit(s) to confirm the zoning for the property. This will help to define your application accurately. The City's full-service Records Department can assist.
☐	☐	4. **Request to Submit Concurrent Development Applications** (form provided)
		5. **Proposition 207 wavier or refusal (Delay submittal until after the Planning Commission Hearing** (sample agreement information provided)
☐	☐	6. **Letter of Authorization** (from property owner(s) if property owner did not sign the application form)
☐	☐	7. **Affidavit of Authorization to Act for Property Owner** (required if the property owner is a corporation, trust, partnership, etc. and/or the property owner(s) will be represented by an applicant that will act on behalf of the property owner(form provided)
☐	☐	8. **Appeal of Required Dedications or Exactions** (form provided)
☐	☐	9. **Commitment for Title Insurance – No older than 30 days from the submittal date** (requirements form provided) • 8-1/2" x 11" – ① copy • Include complete Schedule A and Schedule B.
☐	☐	10. **Legal Description:** (if not provided in Commitment for Title Insurance) • 8-1/2" x 11" – ② copies
☐	☐	11. **Request for Site Visits and/or Inspections Form** (form provided)
☐	☐	12. **Addressing Requirements** (forms provided)
☑	☑	13. **Public Participation Process Requirements** (see Attachment A)
		14. **Request for Neighborhood Group Contact information** (form provided)
☑	☐	15. **Site Posting Requirements:** (form provided (white and red signs) • Affidavit of Posting for Project Under Consideration • Affidavit of Posting for Planning Commission Public Hearing **(Delayed submittal).** Affidavit must be turned in 20 days prior to Planning Commission hearing) • Affidavit of Posting for City Council Public Hearing **(Delayed submittal).** Affidavit must be turned in 20 days prior to City Council hearing)
☑	☑	16. **Photo Exhibit of Existing Conditions: Printed digital photos on 8-1/2"x11" Paper** – (form provided) Provide ① color original set and 1 - 8-1/2" x 11"
☐	☐	17. **Archaeological Resources** (information sheets provided) ☐ Archaeology Survey and Report - ③ copies ☐ Archaeology 'Records Check' Report Only - ③ copies ☐ Copies of Previous Archeological Research - ① copy
☐	☐	18. **Completed Airport Vicinity Development Checklist** – Your property is located within the vicinity of the Scottsdale Municipal Airport (within 20,000-foot radius of the runway; information packet provided) ☐ Airport Data Page ☐ Aviation Fuel Dispensing Installation Approval form

PART II -- REQUIRED NARRATIVE, PLANS & RELATED DATA

Req'd	Rec'd	Description of Documents Required for Complete Application. **No application shall be accepted without all items marked below.**
		19. Plan & Report Requirements For Development Applications Checklist (form provided)
☐	☐	**20. Results of ALTA Survey (24" x 36") FOLDED** • 24" x 36" – ① copies, folded (The ALTA Survey shall not be more than 30 days old) • Digital – ① copy (CD/DVD, PDF Format)
☑	☐	**21. Application Narrative** 8 ½" x 11" – ④ copies 1 copy if digital a. The application narrative shall include: • A one paragraph explanation of the request. This shall be no greater than a half page. • Each of the Conditional Use Permit criteria specify in Section 1.401 of the Zoning ordinance. After each criterion, provide narrative response. • Each of the Additional Conditional Use Permit criteria specify in Section 1.403 of the Zoning ordinance. After each additional criterion, provide narrative response. ☐ Bar ☐ Live Entertainment ☐ Other b. Historic Property. If the property is an existing or potential historic property, describing how the proposal preserves the historic character or compliance with property's existing Historic Preservation Plan.
☐	☐	**22. Security, Maintenance & Operations Plan (For Bars and Live Entertainment)** (form provided) • Required for any of the following uses: ▪ Live entertainment (other than DJ) ▪ Medical marijuana Use / Caregiver Cultivation • The Security, Maintenance & Operations Plan shall be accepted and signed by the Scottsdale Police Department prior to the submittal of the Conditional Use Permit application. See the provided form for instructions.
☐	☐	**23. Public Safety Plan** (form provided) • Required for any of the following uses: ▪ Establishments that require age verification for admittance, such as a Bar ▪ Teen dance centers ▪ Adult uses ▪ Establishments that have a Disc Jockey (DJ) • The Public Safety Plan accepted and signed by the Scottsdale Police Department prior to the submittal of the Conditional Use Permit application. See the provided form for instructions.

☑	☑	**24. Context Aerial with the proposed site improvements superimposed** • 24" x 36" – ② color copies, folded • 11" x 17" – ① color copy, folded • 8 ½" x 11" – ① color copy (quality suitable for reproduction) Aerial shall not be more than 1 year old and shall include and overlay of the site plan showing lot lines, tracts, easements, street locations/names and surrounding zoning for a radius from the site of: ☑ 750 foot radius from site ☐ 1/4 mile radius from site ☐ Other: _____
☑	☑	**25. Site Plan** 1 eB • 24" x 36" – ~~①~~ copies, folded • 11" x 17" – ① copy, folded (quality suitable for reproduction) • 8 ½" x 11" – ① copies (quality suitable for reproduction) • Digital – ① copy (CD/DVD, PDF Format)
☐	☐	**26. Open Space Plan (Site Plan Worksheet)** (sample provided) • 24" x 36" – ② copies, folded • 11" x 17" – ① copy, folded (quality suitable for reproduction) • 8 ½" x 11" – ① copy (quality suitable for reproduction) • Digital – ① copy (CD/DVD, PDF Format)
☐	☐	**27. Natural Area Open Space Plan** (ESL Areas) • 24" x 36" – ② copies, folded • 11" x 17" – ① copy, folded (quality suitable for reproduction)
☐	☐	**28. Topography and slope analysis plan** (ESL Areas) 24" x 36" – ① copy, folded
☐	☐	**29. Landscape Plan** • 24" x 36" – ② copies, folded of black and white line drawings (a grayscale copy of the color Landscape Plan will not be accepted.) • 11" x 17" – ① copy, folded (quality suitable for reproduction) • 8 ½" x 11" – ① copy (quality suitable for reproduction) • Digital – ① copy (CD/DVD, PDF Format)
☐	☐	**30. Hardscape Plan** • 24" x 36" – ② copies, folded of black and white line drawings (a grayscale copy of the color Landscape Plan will not be accepted.) • 11" x 17" – ① copy, folded (quality suitable for reproduction) • 8 ½" x 11" – ① copy (quality suitable for reproduction) • Digital – ① copy (CD/DVD, PDF Format)

31. Parking Plan

- 24" x 36" – ① copy, folded
- 11" x 17" – ① copy, folded (quality suitable for reproduction)
- 8 ½" x 11" – ① color copy (quality suitable for reproduction)
- Digital – ① copy (CD/DVD, PDF Format)

32. Parking Master Plan

See the City's Zoning Ordinance, Article IX for specific submittal and content requirements for Parking Master Plan. The report shall be bound (3 ring, GBC or coil wire, no staples) with card stock front and back covers, and must include all required exhibits.

8-1/2" x 11" - ② copies

33. Pedestrian and Vehicular Circulation

- 24" x 36" – ① copy, folded
- 11" x 17" – ① copy, folded (quality suitable for reproduction)
- 8 ½" x 11" – ① copy (quality suitable for reproduction)
- Digital – ① copy (CD/DVD, PDF Format)

34. Elevations

- 24" x 36" – ② copies, folded black and white line drawing
  (a grayscale copy of the color elevations will not be accepted.)
- 24" x 36" – ② color copies, folded
- 11" x 17" – ① color copy, folded (quality suitable for reproduction)
- 11" x 17" – ① copy, folded black and white line drawing (quality suitable for reproduction)
- 8 ½" x 11" – ① color copy, (quality suitable for reproduction)
- 8 ½" x 11" – ① copy black and white line drawing (quality suitable for reproduction)
- Digital – ① copy (CD/DVD, PDF Format)

35. Floor Plans

- 24" x 36" – ① copy, folded
- 11" x 17" - ① copy, folded (quality suitable for reproduction)

36. Floor Plan Worksheet(s)

(Required for restaurants, bars or development containing there-of, and multi-family developments):

- 24" x 36" – ① copy, folded
- 11" x 17" - ① copy, folded (quality suitable for reproduction)
- Digital – ① copy (CD/DVD, PDF Format)

37. Exterior Lighting Site Plan (policy provided)

- 24" x 36" – ① copy, folded
- 11" x 17" – ① copy, folded (quality suitable for reproduction)

☐	☐	**38. Exterior Lighting Photometric Analysis** • 24" x 36" – ① copy, folded • 11" x 17" – ① copy, folded (quality suitable for reproduction)
☐	☐	**39. Manufacturer Cut Sheets of All Proposed Lighting** • 24" x 36" – ① copy, folded • 11" x 17" – ① copy, folded (quality suitable for reproduction)
☐	☐	**40. Drainage Report** See Chapter 4 of the City's Design Standards & Policies Manual for specific submittal and content requirements for drainage reports. The report shall be bound (3 ring, GBC or coil wire, no staples) with card stock front and back covers, and must include all required exhibits, full color aerial, and topography maps. Full size plans/maps shall be folded and contained in pockets. • Hardcopy - 8-1/2" x 11" - ① copy of the Preliminary Drainage Report including full size plans/maps in pockets • Digital - ① copy of the Drainage Report. Any advanced hydraulic or hydrologic models shall be included (see handout submittal instructions)
☐	☐	**41. Master Drainage Plan** See the City's Design Standards & Policies Manual for specific submittal and content requirements for Master Drainage Report. The report shall be bound (3 ring, GBC or coil wire, no staples) with card stock front and back covers, and must include all required exhibits, full color aerial, topography maps and preliminary grading and drainage plans. Full size plans/maps shall be folded and contained in pockets. • 8-1/2" x 11" - ① copy of the Drainage Report including full size plans/maps in pockets • Digital - ① copy (see handout submittal instructions)
☐	☐	**42. Final Basis of Design Report for Water** See the City's Design Standards & Policies Manual for specific submittal and content requirements for Basis of Design Report for Water. The report must include all required exhibits and plans. Submit by one of the options below: • Email (see handout submittal instructions) • CD/DVD • 8-1/2" x 11" - ④ copies – the report shall be bound, all full size plans/maps provided in pockets.
☐	☐	**43. Final Basis of Design Report for Wastewater** See the City's Design Standards & Policies Manual for specific submittal and content requirements for Design Report for Wastewater. The report shall be bound and must include all required exhibits and plans. Submit by one of the options below: • Email (see handout submittal instructions) • CD/DVD • 8-1/2" x 11" - ④ copies – the report shall be bound, all full-size plans/maps provided in pockets.

☐	☐	**44. Transportation Impact & Mitigation Analysis (TIMA)** (information provided) Please review the City's Design Standards & Policies Manual and Transportation Impact and Mitigation Analysis Requirements provided with the application material for the specific requirements. The report shall be bound (3 ring, GBC or coil wire, no staples) with card stock front and back covers, and must include all required exhibits, and plans. ☐ Category 1 Study ☐ Category 2 Study ☐ Category 3 Study • Email (see handout instructions) • 8-1/2" x 11" - ③ copies of the Transportation Impact & Mitigation Analysis including full size plans/maps in pockets.
☐	☑	**45. Native Plant Submittal** • 24" x 36" – ① copy, folded. (Aerial with site plan overlay to show spatial relationships of existing protected plants and significant concentrations on vegetation to proposed development) • See Sec. 7.504 of the Zoning Ordinance for specific submittal requirements.
☐	☑	**46. Other Plans and Report Requirements** • Please submit all plans, reports, and graphics stipulated in an associated Development application (such as a rezoning, Conditional Use Permit, abandonment, preliminary plat, etc) • 24" x 36" – ① copy, folded. (Plans and graphics) • 8-1/2" x 11" - ③ copies of any report
☐	☐	**47. Other:** _____ _____ _____

PART III – SUBMITTAL OF THE DEVELOPMENT APPLICATION

Req'd	Rec'd	Description of Documents Required for Complete Application. **No application shall be accepted without all items marked below.**
☐	☐	**48. An appointment must be scheduled to submit this application. To schedule your submittal meeting please call 480-312-7767. Request a submittal meeting with a Planning Specialist and provide your case pre-app number; 491-PA-19.**
☐	☐	**49. Submit all items indicated on this checklist pursuant to the submittal requirements.**
☐	☐	**50. Delayed Submittal.** Additional copies of all or certain required submittal indicated items above will be required at the time your Project Coordinator is preparing the public hearing report(s). Your Project Coordinator will request these items at that time, and they are to be submitted by the date indicated in the request.

☐ 51. Other: _____

☐ 52. If you have any questions regarding this application checklist, please contact your Project Coordinator.

Coordinator Name (print): Greg Bloemberg Phone Number: 480-312-4306

Coordinator email: gbloemberg @scottsdaleaz.gov Date: 8.19.19

Coordinator Signature: _____

If the Project Coordinator is no-longer available, please contact the Current Planning Director at the phone number in the footer of this page if you have any question regarding this application checklist.

This application needs a: ☑ New Project Number, or

☐ A New Phase to an old Project Number: _____

Required Notice

Pursuant to A.R.S. §9-836, an applicant/agent may request a clarification from the City regarding an interpretation or application of a statute, ordinance, code or authorized substantive policy, or policy statement. Requests to clarify an interpretation or application of a statute, ordinance, code, policy statement administered by the Planning and Development Services, including a request for an interpretation of the Zoning Ordinance, shall be submitted in writing to the One Stop Shop to the attention of the Planning and Development Services Director. All such requests must be submitted in accordance with the A.R.S. §9-839 and the City's applicable administrative policies available at the Planning and Development Services' One Stop Shop, or from the city's website: http://www.scottsdaleaz.gov/planning-development/forms

Planning and Development Services
One Stop Shop
Planning and Development Services Director
7447 E. Indian School Rd, Suite 105
Scottsdale, AZ 85251
Phone: (480) 312-7000

Routing Sheet

1st Submittal or **Resubmittal** (←circle one)

(Stip Review Added - Except AB)

Public Hearing Case Type (circle one):														Administrative Case Type (circle one):						
AB	AN	BA	DR	GP	HE	HP	II	IP	PE	PP	TA	UP	ZN	Other:	HP	MD	MN	MS	SA	WM	Other:

Coordinator:	Pre-App #	Date Submitted: 9/11/19	PC/CC Track: _____	BOA Track: _____
Admin Staff: _____	Case #:	Comments Due: _____	DRB Track: _____	Other: _____

Review Team: (For additional documents, please view the **Digital** case folder in CDS)		Design Review (Steve Venker)	Engineering Group (Eliana Hayes)	Transportation Eng (Phil Kercher)	Transportation Pln (Greg Davies)	Fire Group (Scott Stanek)	Drainage (Richard Anderson)	GIS (Tanya H.)	Airport (Sarah Ferrara)	Maps (Eliana Hayes)	Land Survey (Dwayne Haught)	Archaeological (Steve Venker)	Long Range Pln (Taylor Reynolds)	Water Resources name: NAME?	Other:
☒	**Digital File**	X		X	X										
	DIGITAL REVIEW														

Copy and paste the X above to mark the boxes for reviewers

9-UP-2019
9/12/2019

Updated: 9/25/18